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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,902	01/22/2004	Aurel D. Brumboiu	28959-12	1901
23971	7590	10/13/2005	EXAMINER	
BENNETT JONES C/O MS ROSEANN CALDWELL 4500 BANKERS HALL EAST 855 - 2ND STREET, SW CALGARY, AB T2P 4K7 CANADA			GARBER, CHARLES D	
			ART UNIT	PAPER NUMBER
			2856	
			DATE MAILED: 10/13/2005	

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/707,902		BRUMBOIU ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Charles D. Garber		2856	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) 23-26,38-46 and 53-61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22,27-37 and 47-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>05/26/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

In accordance with 37 CFR 1.105 Examiner requires the submission, from individuals identified under § 1.56(c), or any assignee, such information as may be reasonably necessary to properly examine or treat the matter. This includes: a copy of any non-patent literature, published application, or patent (U.S. or foreign) that was used in the invention process, such as by designing around or providing a solution to accomplish an invention result related to using measured concentration of a component of interest; and adjusting a collector fluid flow rate to bring a measured concentration into a selected concentration range. The period for reply to this request coincides with the response period for the Office Action.

***Election/Restrictions***

Claims 23-26, 38-46, 53-61 are hereby withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 09/27/2005 .

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 to 22, 27 to 37, 47 to 52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 1 recites "the membrane open surface includes an active area open to the fluid to be analyzed and open on an opposite side for contact with collector fluid flow in the channel and the active area is at least 20% of the total membrane area". Examiner is uncertain if the active area percentage of total area is measured with respect to the area in contact with the channel area or fluid to be analyzed. This uncertainty renders the claim indefinite.

Claims 2-22, 27-37 and 47-52 depending from indefinite claim 1 are indefinite for the same reason.

For purposes of further examination on the merits Examiner will assume the active area is measured with respect to the area exposed to the fluid to be analyzed.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4, 5, 12-16, 27-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardiner et al. (US Patent 3,830,106).

Regarding claim 1, former 1 and boss 8 are a probe body, membrane 3 is in the form of a tubular sheet secured to the former including an open surface exposed to the exterior of the device as shown in the figure, groove 2 is a channel formed between the former and membrane through which a fluid can flow, and openings in the end of tubes 9, 10 are inlet and outlet ports. Flow in the groove will flow substantially parallel to the membrane as can be seen in the figure. From inspection it can be seen that substantially more than 20% of the area of the membrane is exposed to the fluid to be analyzed (the only area not so exposed appears to be under seals 4, 5).

The groove width (orthogonal to the obvious flow direction) however is not expressly 5 times the groove depth. Nevertheless, Gardiner explains "[t]he

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cross-section and length of the groove or ridge formed in the member can be varied within wide limits as desired. ... A shallow groove is advantageously used again to provide the maximum surface area of dialysis membrane per unit volume of the helical passage". Examiner considers it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a groove, width orthogonal to the flow direction, that is 5 times the groove depth, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In this case, the result effective variable is providing the maximum surface area of membrane per unit volume of the passage which may be accomplished with a shallower groove.

As for claim 4, the groove as has side walls as shown.

As for claim 5, rings 4, 5 clamp the membrane to the body as shown in the figure.

As for claim 12, items 9, 10 through the body and to the groove.

As for claim 13, former 1 may be considered a membrane stem and boss 8 may be considered a fitting end connected to the former or stem as in the instant invention. Tubes 9 and 10 may be considered to open on the boss or fitting end.

As for claim 14 the fluid in tubes 9 and 10 will flow in opposite directions as in the instant invention.

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As for claim 15, the boss may be mounted in a process as in the instant invention intended usage. The boss maximum outer diameter is more than the former maximum outer diameter

As for claim 16, the membrane 3 is elongate and may assume the shape of a ribbon when not installed on the former.

As for claims 27-37, It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations *Ex parte Masham* 2 USPQ2d 1647 1987).

Claims 2, 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardiner et al. (US Patent 3,830,106) in view of Lucero (US Patent 3,926,561).

Regarding claim 2, Gardiner as applied to claim 1 above does not expressly teach the membrane is a composite including a membrane.

Lucero teaches a membrane 60 may be supported on screen or grids 74 forming a composite.

It would have been obvious to one having ordinary skill in the art at the time the invention was made support a membrane on screens or grids as a membrane is preferably a very thin sheet and may not be entirely self-supporting over a large area under certain conditions (column 3 lines 59-68). A screen or grid would provide the support needed to prevent damage to the thin membrane under a variety of conditions.



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As for claim 3, Gardiner also lacks a gasket between the membrane and body.

Lucero teaches seals 70 between the membrane 60 and body parts 64 or 66 in order "to prevent fluid leakage".

It would have been obvious to one having ordinary skill in the art at the time the invention was made provide a gasket or seal between the membrane and body to prevent leakage.

Claims 47, 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardiner et al. (US Patent 3,830,106) in view of Long et al. (US Patent 5,054,328)

Regarding claim 47, Gardiner further discloses the device may provide a continuous sample to automatic measuring and recording equipment (column 3 lines 32-38) which clearly implies the outlet is connected to the analyzer but does not expressly or impliedly teach the inlet is also.

Long teaches inlet 16 and outlet 18 both connected to analyzer 24 forming a fluid loop.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to connect both inlet and outlet to an analyzer in a loop to allow the accumulation of diffusing substances on the analyzer side and thus increase the sensitivity of the analysis.

As for claim 48, Examiner takes Official Notice that "air" is a common and widely known carrier gas and It would have been obvious to one having ordinary



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skill in the art at the time the invention was made to use air as it requires no special source and may greatly simplify the instrument.

As for claim 52, Examiner takes Official Notice that it is widely known to use at least one of a catalytic combustible detector, a spectrophotometer, chromatograph or TCD to advantageously monitor gas concentration and it would have been obvious to one having ordinary skill in the art at the time the invention was made to include at least one of catalytic combustible detector, a spectrophotometer, chromatograph or TCD to analyze gas concentration to monitor and control chemical processes to operate within desired limits.

Claims 49, 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardiner et al. (US Patent 3,830,106) as modified by Long et al. (US Patent 5,054,328) and applied to claim 48 above and further in view of Taylor et al. (US Patent Application 2002/0184956).

The references lack the outlet line comprising membrane coaxial tubing with collector flow in the inner core and flow of drying gas through an outer annulus.

Taylor teaches a sample line 18 outgoing to a detector system with inner membrane tube 33 surrounded by outer annulus 31 through which dry air flows. "The dry air picks up moisture from the sample gas passing through [sic] the lumen of the membrane 33." (paragraph 0025).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the outlet line with membrane coaxial tubing with collector flow in the inner core and flow of drying gas through an outer

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annulus in order to remove moisture from the sample gas before it reaches the detector. Humidity may adversely or variably effect the measurement of selected gasses. Dehumidifying the sample will simplify the measurement of selected gases.

Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gardiner et al. (US Patent 3,830,106) as modified by Long et al. (US Patent 5,054,328) and applied to claim 47 above and further in view of Kahl et al. (US Patent 5,487,312).

Long further teaches a pump 25 which is a control means as in the instant invention. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a pump to circulated gas in the gas circuit taught by Long. However, the reference do not expressly teach switching (controlling) sample concentration with selected flow values of the collector fluid.

Kahl teaches a "detector (3) of the gas analyzer is connected on the output side via a computer (10) with a dilution regulator (15) which readjusts the flow of inert gas via the control valve (13) in such a way that the amplified detector output signal is maintained at a given reference value, wherein the measurement gas flow is increasingly diluted as the measurement gas concentration increases." This is advantageous for expanding the measurement range of the gas analyzer considerably beyond the standard range (abstract)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to switch or control sample concentration with

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selected flow values of the collector fluid in order to considerably expand the measurement range of the analyzer beyond the normal range.

***Allowable Subject Matter***

Claims 6-11, 17-22 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles D. Garber whose telephone number is (571) 272-2194. The examiner can normally be reached on 6:30 a.m. to 3:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cdg

  
**CHARLES GARBER**  
**PRIMARY EXAMINER**